

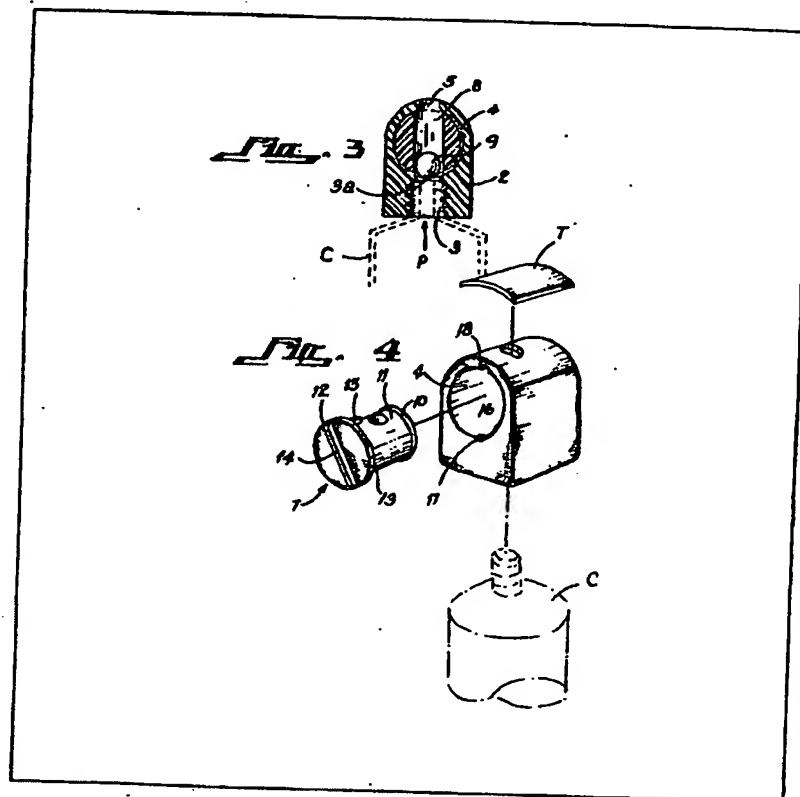
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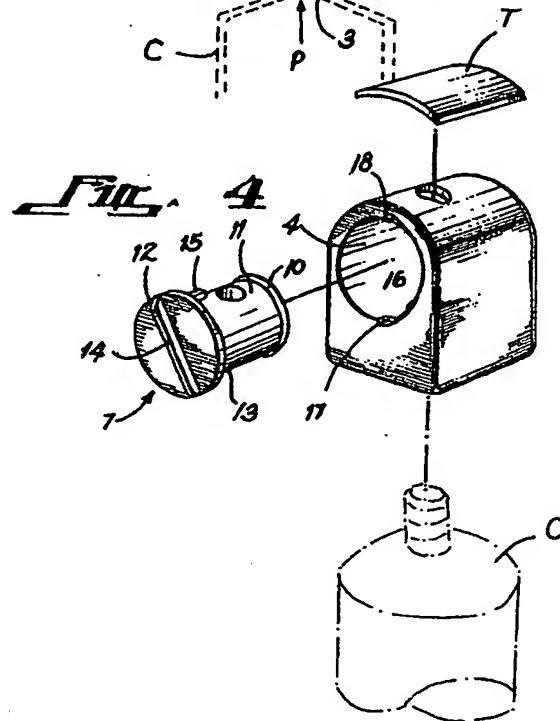
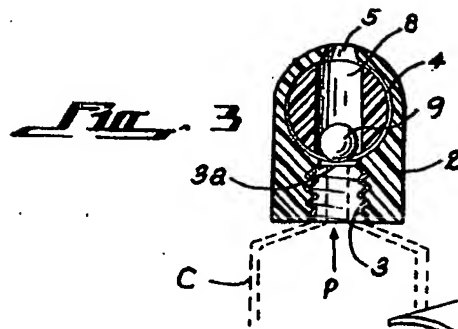
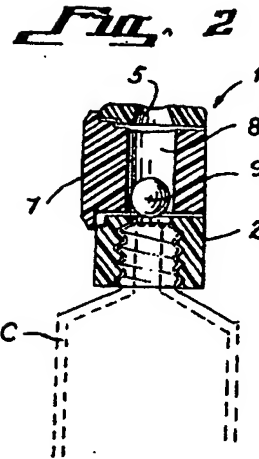
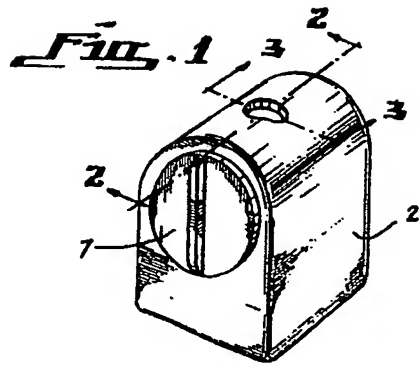
(54) Dispensing head for collapsible tube containers

(57) A dispensing head for a container, particularly a collapsible tube container, has a preferably cylindrical bore 4 therethrough, into which fits a stopper 7 which is rotatable between a first position in which an opening 8 connects the outside of the dispensing head with an

opening 3a into the container, and a second position in which the container is closed off. The opening through the stopper member contains a valve member, preferably a ball 9, which is movable between a first position adjacent the container opening 3a in which it serves as a pusher and a second position adjacent the opening 5 to the outside of the dispensing head in which it acts as a seal.



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## SPECIFICATION

## Dispensing head for collapsible tube containers

This invention relates particularly to a device to be connected to the threaded neck of a collapsible tube container or directly to the open end thereof to serve as cover and dispensing head therefor.

It has been observed that caps of collapsible tubes are frequently lost even before the contents thereof are totally used up. Due to this, the contents of said collapsible tubes are unduly exposed. Furthermore, due to the variable pressures normally applied to collapsible tubes, the amount dispensed could not be controlled, such that sometimes the amount dispensed is very much more than which is actually needed.

The object then of this invention is to provide a novel dispensing head for collapsible tube containers which will allow only the discharge of a small predetermined amount everytime the collapsible tube is pressed.

Another object of this invention is to provide a dispensing head for collapsible tubes which does not have to be detached from the collapsible tube everytime the contents thereof is dispensed.

A specific object of this invention is to provide a dispensing head with a captive rotatable member which could be easily operated to effect the opening or closing of the discharge passage of said dispensing head.

Another specific object of this invention is to provide a dispensing head for collapsible tubes the discharge opening of which is automatically sealed after every dispensing thus precluding the exposure of the contents of the collapsible tube container.

The present invention provides a dispensing head for a container comprising:

a dispenser body having a bore therethrough, said dispenser body being provided with means for attachment to an opening in a container and also having therein a first aperture through which the inside of the bore can communicate with an aperture in a container when the dispensing head is attached thereto and a second aperture connecting said bore to the outside of the dispenser body;

a stopper member having an opening therethrough and mounted to fit snugly in the bore of the dispenser body, said stopper member being rotatable between a first position in which the opening therethrough connects the two said apertures in the dispenser body and a second position in which it closes the two said apertures off from one another and

a valve member within the opening through said stopper member and constrained to move between the said first and second apertures, the dimensions of said valve member being such that it cannot pass through either of said apertures.

A preferred embodiment of the invention will now be described with reference to the appended drawings wherein:

Figure 1 is a perspective view of this dispensing head for collapsible tube containers when fully

65 assembled.

Figure 2 is a cross-sectional view of this dispensing head taken along line 2—2 of Figure 1.

Figure 3 is another cross-sectional view of the dispensing head taken along line 3—3 of Figure 1.

70 Figure 4 is an exploded view of the dispensing head.

This dispensing head for collapsible tube containers is intended to replace the conventional cap screwed to the threaded neck of said containers or to replace rigid dispensing neck of said containers.

As shown in the drawings, this dispensing head 1 has a cap member 2 with a vertical threaded bore 3 on the lower side thereof, such that said cap member could be screwably attached to the threaded neck of a conventional collapsible tube container C. The threaded bore has a much reduced plain upper portion 3a. On the upper portion of said cap member is a large horizontal circular hole 4 with an axis normal to the axis of the threaded bore and extended portion thereof, and a plain upper vertical bore 5 co-axial with the extended threaded bore portion 3a. The bore 5 extends to the top of the cap.

Disposed rotatively in the large horizontal hole 4 is the generally cylindrical rotatable member 7 which has a diametrical bore 8 at the middle portion thereof, the axis of which is coplanar with the axis of the upper vertical bore 5, such that when the bores 3a, 5, 8 and 3 are in alignment, there would be formed a continuous passage P from the bottom of the cap member to the top thereof, within the bore 8 is disposed a ball 9 which serves as a pusher when at the bottom of the bore 8 and as a seal when at the top thereof.

The bore 8 is slightly larger in diameter than the bores 5 and 3a.

To prevent the rotatable member from moving out of the cap, said rotatable member is provided with a thin circumferential rib 10 at the end 11 thereof, and another circumferential rib 12 at the other end 13 thereof. At the end 13 is a diametrical ridge or flange 14 which serves as a handle for rotating said rotatable member. For limiting the rotation of the rotatable member to positions where the bore 8 would be in exact alignment with the bores 5, 8 and 3a of the cap, there is provided an axial lug 15 which extends inwardly from the circumferential rib 12. The lug 15 travels along an arcuate recess 16 on the adjacent side of the cap member and is adapted to be stopped by end sides 17 and 18.

To prevent the evaporation or hardening of the contents of the collapsible tube during the storage and sale, any suitable tape T may be stuck on the top of the cap member to cover the bore thereof.

While this dispensing head is adapted for use with conventional collapsible tube containers with threaded necks, the bottom threaded bore thereof may be plain with a circumferential rib at the bottom so that said cap member may assume a snap-on form which is well-known in the art. In the above case, the neck of the collapsible tube container is also plain with a corresponding

circumferential rib to engage the circumferential rib at the plain bottom bore of the cap member.

While the cap member of this dispensing head is of the shape shown in the drawings, it may, however, have the shape of a cylinder, sphere or any desired shape.

When used to replace the entire rigid dispensing neck of collapsible containers, the open end of the collapsible tube will be simply secured to the cap member 2. In this case the bottom threaded bore of said cap may not be threaded anymore.

Various modifications may be made on the above described invention without departing from the essence of the invention as defined in the appended claims.

#### CLAIMS

1. A dispensing head for a container comprising:
  - a dispenser body having a bore therethrough, said dispenser body being provided with means for attachment to an opening in a container and also having therein a first aperture through which the inside of the bore can communicate with an aperture in a container when the dispensing head is attached thereto and a second aperture connecting said bore to the outside of the dispenser body;
  - a stopper member having an opening therethrough and mounted to fit snugly in the bore of the dispenser body, said stopper member being rotatable between a first position in which the opening therethrough connects the two said apertures in the dispenser body and a second position in which it closes the two said apertures off from one another and
  - a valve member within the opening through

said stopper member and constrained to move between the said first and second apertures, the dimensions of said valve member being such that it cannot pass through either of said apertures.

2. A dispensing head according to claim 1 wherein the valve member is a ball.

3. A dispensing head according to claim 1 or claim 2 wherein the opening through said stopper member extends substantially at right angles to the axis of rotation of the stopper member, the said first and second apertures being substantially coaxial.

4. A dispensing head according to any preceding claim wherein the means for attachment to a container is an internally threaded bore communicating with the first said aperture.

5. A dispensing head according to any preceding claim wherein means are provided for limiting the rotation of the stopper member to rotation between two positions in which the opening therethrough connects the two said apertures.

6. A dispensing head according to any preceding claim wherein the axial bore and the stopper member therein are both substantially cylindrical.

7. A dispensing head substantially as herein described with reference to, or as illustrated in, the accompanying drawings.

8. A container for fluid substances having a dispensing aperture to which is attached a dispensing head according to any preceding claim.

9. A container according to claim 8 the sides of which are collapsible whereby fluid in the container may be dispensed through said dispensing head by squeezing the sides of the container.